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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,008	02/18/2004	Katsunobu Sumimura	KGMEP016	5426

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EXAMINER

LEFF, STEVEN N

ART UNIT PAPER NUMBER

1761

DATE MAILED: 12/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/782,008

Applicant(s)

SUMIMURA ET AL.

Examiner

Steven Leff

Art Unit

1761

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 6/24/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

- Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Bengtsson et al. (3734751).

With regards to claims 1-4 Bengtsson et al teach the preparation of “leaf vegetables such as spinach” (abstract) Bengtsson et al specifically teach the method of first “increasing the dry matter content of the comminuted vegetables by partial dewatering, for example by pressing or centrifugation, to a dry matter content of about 9-15% by weight.” (pg. 1 col. 1 lines 62+) “Centrifugation, using a desludging centrifuge, is preferred, and this operation yields two streams.” (pg. 1 col. 1 line 64+) “The first is the product, containing 9-15% by weight of dry matter, and a clear effluent containing less than about 3% solids.” (pg. 1 col. 1 lines 66+) Bengtsson et al further teach that the effluent “may be purified, for example by treatment with... electrodialysis.” (pg. 1 col. 2 line 2+) “The purification step removes from the effluent certain undesirable anions, such as nitrate...” (pg. 1 col. 2 line 5+)

With regards to claim 4, Bengtsson et al teaches using a desludging centrifuge in order to obtain a dry matter content of less than 3%. Although Bengtsson et al does not refer to the dry matter content as “sludge volume” Bengtsson et al. does teach the use of centrifugation for its art recognized and applicants intended purpose of reducing the dry matter content. Sludge volume is defined as the amount of dry matter in a given amount of fluid. Therefore Bengtsson et al. teaches the limitation according to claim 4.

Therefore with regards to claims 1-4 Bengtsson et al. teaches all of the limitations.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bengtsson et al. Bengtsson et al. is taken as above.

With regards to claims 5-8, Brix is a measurement that is dependant upon the amount of solids in a given weight of plant juice. Expressed another way Brix is a summation of pounds of sucrose, fructose, vitamins and other solids in one hundred pounds of any particular plant juice. The amount of water that is present as well as the amount of solids that are present is dependant upon the type of plant. Further the Brix value can be altered to any degree by the addition or subtraction of water. Therefore with regard to Bengtsson et al., although Bengtsson et al. does not specifically recite a specific Brix value for the concentrated juice, however Bengtsson et al. does teach "partially dewatering", and further teaches a dry matter content of 9-15% resulting in an effluent (vegetable juice) with a dry matter content of less than 3%. It would have been obvious to one of ordinary skill in the art to adjust the Brix value by adjusting the amount of water with respect to the solid (sugar) content. This value would further be dependant upon the type of vegetable being used due to the differences in sugar content between different vegetables. Consequently, one of ordinary skill in the art would have been motivated to adjust the Brix value in order to obtain an end product that is desirable in taste, color, etc. with respect to the specific vegetable being used. Therefore the referenced value and method meet those of the instant claims, and it would be expected that the vegetable juice

would attain a Brix values in the ranges listed in the instant claims, absent any clear and convincing evidence and/or arguments to the contrary.

In addition, the length of time which centrifugation takes place during “dewatering” would proportionally affect the Brix value due to the amount of water that would be present in the effluent (vegetable juice). The Brix value, with respect to Bengtsson et al., would be dependant upon the extent of which “dewatering” is to take place. The effluent (vegetable juice) could have a range of possible Brix values that could be controlled by the amount of “dewatering”. However the Patent Office does not possess the facilities to test the claimed invention and those of the reference. The office action has set forth a proper obviousness rejection, and thus the burden shifts to applicant to demonstrate otherwise. Thus the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by the applicant, absent any clear and convincing evidence and/or arguments to the contrary.

Thus with respect to claims 5-8 it would have been obvious to one of ordinary skill in the art at the time of the invention by the applicant to have made or produced a vegetable juice with a Brix value in the ranges listed in the instant claims.

- Claims 9-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bengtsson et al. in view of Hekai (4857343)

With respect to claims 9-17, Bengtsson et al is taken as above.

Hekai teaches the “treatment of liquid comestibles such as fruit and vegetable juices.” (col. 1 line 6+) The “liquid comestibles are electrolytically treated... at temperatures lower than those normally used...” (abstract) The particular temperature range that Hekai teaches is 160 degrees Fahrenheit or less. (col.3 line 36+) Hekai further teaches, “in the line to the inlet there normally is a proportioning means such as a valve or pump, not shown, for controlling the flow rate of the fruit juice. (col. 4 line 57+)

With regards to claims 9-11, one of ordinary skill in the art would have been motivated to combine the teachings of Bengtsson et al and Hekai to produce a vegetable juice with a flowing speed of .5-10cm/sec. Bengtsson et al does not teach a specific speed with which the juice flows over the membrane surface during electrodialysis. However Bengtsson et al does teach the use of vegetable juice, specifically spinach juice, and the method of removing nitrate from concentrated juice through the use of

electrodialysis. Hekai teaches the idea of controlling the flow rate of the juice during electrodialysis. The flow rate with which the vegetable juice passes over the membranes during electrodialysis can be, and is needed to be, directly controlled in order to attain the desired vegetable juice. For instance, different factors such as, vegetable juice with different Brix values, and the temperature of the juice would affect the viscosity as well as the specific type of vegetable juice being used. All of these factors must be taken into account when adjusting the flow rate of the juice with respect to the membrane, thus necessitating a valve for controlling the flow rate. Therefore with regard to claims 9-11 it would have been obvious to combine a range of Brix values, and/or a list of vegetables with a range of operating speeds for the vegetable juice.

With regard to claims 12-17, Hekai teaches in example 1 the use of a “chilled (42 F) single strength orange juice”. Although example 1 specifically recites the use of orange juice, Hekai teaches the overall method with respect to “fruit and vegetable juices”. (col. 1 line 6+) Consequently, it would have been obvious to one of ordinary skill in the art to substitute a vegetable juice such as spinach, celery or kale juice, as taught by Bengtsson et al., for the orange juice as is stated by Hekai in example one. Hekai therefore teaches the method of producing a vegetable juice using electrodialysis, where the juice is chilled to a temperature of less than 10C and the juice flows into the chamber at a flow rate of .5-10cm/sec. The only difference between the prior art of Bengtsson et al and that of the claimed method was a recitation of temperature and speed of the juice flowing over the membrane; however Hekai positively teaches these specifics with regards to producing vegetable juice. The method of producing a vegetable juice, of the instant claims, would not be expected to perform differently than the prior art method; therefore the claimed method is not patentably distinct from the prior art method.

Thus with respect to claims 9-17 it would have been obvious to one of ordinary skill in the art at the time of the invention by the applicant to have made or produced a vegetable juice which is at a temperature of below 10C and a flow rate, with respect to the membrane, of 0.5-10cm/sec during electrodialysis.

Allowable Subject Matter

There is no allowable subject matter at this time

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. 5407696, 3608610, 2116920, 5223107, 4374714, 0751179, 2465967, 3369906, 3265607, 2140341, 1972561, 3165415, 2483634, 3391009-, EP-858742, DE-3728372, EP-547236, JP-56045180, EP-166090, 738893.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Leff whose telephone number is (571) 272-6527. The examiner can normally be reached on Mon-Fri 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571) 272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SL


KEITH HENDRICKS
PRIMARY EXAMINER